International Journal of Farm Sciences **8(3):** 107-110, 2018; doi: 10.5958/2250-0499.2018.00094.0

Tribal community dependence on Nilgiri Biosphere Reserve in Nilgiris district of Tamil Nadu

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 Received: 5.5.2018/Accepted: 15.6.2018

ABSTRACT

The study was conducted to measure the extent of forest dependency of the tribal community in the Nilgiri Biosphere Reserve of Nilgiris district in Tamil Nadu. Relative forest income was computed to assess the income contribution of forest to the tribal households. A multiple linear regression model was used to analyse the factors determining the forest dependency of tribal households. The results indicated that the relative forest income shared the major proportion of tribal households' total income of about 40.08 per cent and low income people depended more on forest for their livelihood than moderate and high income group of about 59.01 per cent. Age, family size, livestock holdings, annual income, distance to forest etc were found to be the influencing factors of determinants in forest dependency. These results showed that poverty was interlinked with the environmental degradation.

Keywords: Determinants; forest dependence; tribal community; income

INTRODUCTION

Tribes, the indigenous communities in India are residing in almost every states of India. India has the second largest tribal population in the world after the African countries. Indian tribal strength constitutes for about 8.6 per cent of total population (Anon 2011). More than centuries they have been leading a normal and simple life with their own base into the natural environment and have developed cultural practices compatible to their social and physical environment. Considerable populations are still living in a primitive basic life style (Hemasrikumar 2009). The livelihood of tribal population depends on gathering forest produces and agriculture. Forest provides them the raw materials to build their home and to practice their art. Their life conserving forests have been occupied in term of modern civilization. The state of modern life style involuntarily forced them to get assorted with modern generation though they did not pay proper attention and esteem to their culture so most of them are still living in the state of below poverty line. Tribal groups are considered as rich socially but poor economically.

Poverty is profound among the tribes in the country. India's poorest population is enclosed with about 50 per cent of the scheduled tribes population. Forest resources primarily collection of non-timber forest products (NTFPs) play a significant act in the survival and viability of tribal households as forest and forest resources are necessarily involved in their cultural, social and economic livelihood (Gnanamoorthy 2015).

The majority of the tribes in Tamil Nadu belong to Todas, Kadars, Irulas, Kotas, Kattunaikas Kurumans, Muthuvans, Paniyans, Pulayans, Malayalees, Kurumbas, Eravallans, Kanikkars and Mannans (http://www.environmentalpollution.in/forestry/forest-tribes/7-principal-tribal-regions-of-india-forest-tribes-forestry/4782).

The Todas (pastoral people), the Kotas (artisan people), the Kurumbas, the Irulas, the Paniyans and the Kattunaickans who are food gatherers and agricultural labourers are identified as primitive tribal communities (Venugopal 2004). Interestingly all the six primitive tribes are native to the district of Nilgiris. More

than centuries the primitive groups of the Nilgiris hills in south India were detached from the people who resided in the plains below. As per Anon (2011) Tamil Nadu has about 7 lakh tribes and particularly Nilgiris district holds the tribes population of about 22000. The present study has focus on tribes who resided in Nilgiri Biosphere Reserve in Nilgiris district to measure the extent of their dependence on forests for livelihood.

METHODOLOGY

A sample size of 90 tribes was included in the study. A two stage sampling method was adopted to select the sample respondents from the four blocks of Nilgiris district viz Gudalur, Kotagiri, Ooty and Coonoor and tribal villages of respective blocks.

Measuring forest dependence: The forest dependence of tribal community was measured using the relative forest income. Relative forest income (RFI) was computed as a share of net forest income to total household income accounts derived from consumption and sale of forest environmental resources (Langat et al 2016) as below:

$$RFI = \frac{TFI}{TI} \quad \text{.....1}$$

where RFI: Relative forest income of the respondent household, TFI: Total forest income of the respondent household, TI: Total household income

Determinants of forest dependency of tribal groups: A multiple linear regression model was used to analyse the factors determining the forest dependency of tribal households and the model is specified as:

$$D = \alpha + \beta_1 AGE + \beta_2 SEX + \beta_3 FSIZE + \beta_4 LSIZE + \beta_5 LIVES + \beta_6 HHINC + \beta_7 MEM + \beta_8 DIST + \varepsilon \quad \text{.....2}$$

where D: Dependency percentage of tribal households, AGE: Age of tribal respondent, SEX: Gender of head of the household, (if Male= 1 or otherwise= 0), FSIZE: Family size of respondent, LSIZE: Size of land (ha) owned by the respondent, LIVES: Number of livestock by respondent, HHINC: Total income of the respondent household, MEM: 1 if respondent belonging to the member of user group or otherwise 0 if respondent is not a member, DIST: Distance (km) between the residence and forest

RESULTS and DISCUSSION

Forest products obtained by tribal households: Diverse forest products were collected by tribal households for home consumption and for sale which can be classified into fruits, vegetables, honey, fuelwood, poles and thatched grass for construction and soapnut.

From the primary survey of tribal respondents 20 products were identified and among them 11 were indigenous food products. Percentage of respondent households involved in collection of various forest products is presented in Table 1. It was found that 70.00 per cent of households were involved in collecting fruits followed by construction materials (67.78%), soapnut (66.67%), vegetables (65.56%) and fuelwood (43.33%).

Table1. Percentage of households involved in collection of various products

Product classification	Percentage of households involved
Fruits	70.00
Vegetables	65.56
Honey and bee wax	16.67
Fuelwood	43.33
Poles and thatched grass	67.78
Soap nut	66.67
Others	22.22

Forest dependence of tribal households: The forest dependence was measured using the relative forest income. Relative income share of all activities of tribal households is presented in Table 2. The results indicated that the relative forest income shared the major proportion of tribal households' total income of about 40.08 per cent followed by agricultural activity (27.04%), agricultural labour (16.73%). It showed that dependence on forest for livelihood was high with relative forest income share of 40.08 per cent.

Table 2. Relative income share of all activities of tribal households

Activity	Relative income share (%)
Forest-related activity	40.08
Agriculture	27.04
Agricultural labour	16.73
Livestock	10.11
Others	6.04
Total	100.00

To test the dependence of income groups sampled households were categorized into three income groups based on their level of total household income

viz low (Rs 5000-9999), medium (Rs10000-14999), high (Rs 15000 and above) (Langat et al 2016). The categories were based on local conditions and did not reflect the general poverty levels.

The analysis of variance was conducted to test the homogeneity of the households with respect to level of their income and it was found that significant difference existed between the income groups. Hence relative forest income was calculated separately for each income group (Table 3).

Table 3. Relative forest income of different income groups

Income group	Relative forest income (%)
Low (Rs 5000-9999)	59.01
Medium (Rs10000-14999)	22.58
High (Rs 15000 and above)	9.77

The low income group of tribes had their relative forest income share of about 59.01 per cent followed by medium (22.58%) and high income group (9.77%). It shows that the low income group depended more on forests for its livelihood than moderate and high income groups.

Determinants of forest dependency of tribal groups: Factors were included in this study based on the work of Fikir et al (2016) and primary survey (Table 4). The coefficients of variables such as age and family size were positive and significant at one per cent level indicating that these variables had a positive and significant influence on dependency on forest in the tribal households. The positive coefficient of age indicated that with the advancement of age participation in forest-related activities got increased ie higher the age, higher was the level of dependence on forest.

The coefficient of family size variable indicated that an increase in the size of the family marginally by one unit would increase the probability of dependency on forest by 5.84 units which might be due to the added pressure on households to earn enough for sustenance which might induce the family members to participate intensively in forest-related activities. The coefficient of variables livestock and annual income were negative and significant at one per cent level indicating that these variables had a negative and significant influence on dependency on forests in the tribal households. The negative coefficient indicated that higher the number of livestock owned and annual income lesser would be the dependence on forests.

Table4. Estimated multiple linear regression model

Variable	Coefficient	t-value	Level of significance
AGE	0.60 (0.14)	4.18	***
GENDER	-8.35 (5.14)	-1.62	NS
FSIZE	5.84 (1.05)	5.54	***
LSIZE	-2.22 (1.37)	-1.61	NS
LIVES	-5.20 (1.02)	-5.10	***
HHINC	-7.60 (3.20)	-2.37	***
MEM	6.20 (4.02)	1.54	NS
DIST	-3.62 (1.80)	-2.02	**
Constant	26.59 (11.47)	2.32	**

Number of observations= 90, R^2= 0.89, Figures in parentheses indicate SE, ***Significant at one per cent level, **Significant at five per cent level, *Significant at ten per cent level, NS= Non-significant

The coefficient of variable distance to the forest was negative and significant at 5 per cent level indicating that greater the distance between the residence and forest lesser would be the dependence on forest in tribal households.

CONCLUSION

Dependence of tribal households on forests for livelihood was found to be high with relative forest income share of 40.08 per cent and low income people depended more on forests for their livelihood than other income groups.

The factors such as age and family size were positively determining the probability of households to participate in the forest-related activities while the livestock, annual income and distance to the forest were negatively influencing the probability of participation in forest-related activities. The results indicated that existance of poverty allowed tribal people to depend on forests for their livelihood hence higher education, financial assistance to take up the small scale business and awareness campaign to conserve the forests were required to assist their livelihood and to protect the forests from dwellers.

REFERENCES

Anonymous 2011. Scheduled tribes in India: as revealed in Census 2011. Census of India 2011, Ministry of Home Affairs, Government of India.

Fikir D, Tadesse W and Gure A 2016. Economic contribution to local livelihoods and households dependency on dry land forest products in Hammer district, southeastern Ethiopia. International Journal of Forestry Research, http://dx.doi.org/10.1155/2016/5474680.

Gnanamoorthy K 2015. Status and survival of primitive Paniyan tribes in the Nilgiris district of Tamil Nadu: an economic analysis. PhD Thesis, University of Madras, Chennai, Tamil Nadu, India.

Hemasrikumar 2009. Prevalence of poverty among the primitive tribal groups in the Nilgiris district. PhD Thesis, Avinashilingam University for Women, Coimbatore, Tamil Nadu, India.

http://www.environmentalpollution.in/forestry/forest-tribes/7-principal-tribal-regions-of-india-forest-tribes-forestry/4782

Langat DK, Maranga EK, Aboud AA and Cheboiwo JK 2016. Role of forest resources to local livelihoods: the case of East Mau forest ecosystem, Kenya. International Journal of Forestry Research, http://dx.doi.org/10.1155/2016/4537354.

Venugopal D 2004. Development-conservation dilemma in the Nilgiri mountains of south India. Journal of Mountain Science **1(1):** 74-80.